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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,910	05/20/2002	Christof Roscher	060953-0131	9922

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,910

Applicant(s)

ROSCHER, CHRISTOF

Examiner

Cynthia Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/28/02, 3/14/03, 1/14/2002, 5/20/2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6, 7.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitations "the compounds I and II" and "the monomers" in lines 9-10. Claim 1 recites the limitation "said compound II" line 11. Claim 1 recites the limitation "the radicals" in line 13. There is insufficient antecedent basis for these limitations in the claim. Because of this confusion, what is meant by "wherein the molar ratio of the compounds I and II in relation to the monomers is 1 : 1" is indeterminable. If 'said compound II' is meant to reference the silane of the general formula II is it referencing only one or all of the organically modified silanes used in the condensation reaction? This is another confusion caused by the unclear meaning of compound II. The same is true of compound I if it is in reference to the organically modified silanediols of the general formula I. Are all of the modified silanediols part of compound I? Are the precondensates part of compound I? What is encompassed by compound I? What are the monomers and how do they relate to the compounds I and II? These same problems are present in the language of claims 16 and 17 and 19 as well. Claims 2-5 make reference to "said compound of the general formula II". There is insufficient antecedent basis for this limitation in the claim. Claims 8-9 make reference to "said radical Ar". There is

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insufficient antecedent basis for these limitations in the claim. Claim 10 makes reference to "said radical R". Claim 12 makes reference to "said radical R of the general formula II". There is insufficient antecedent basis for these limitations in the claim. Thus, claims 1-19 are indefinite because applicants did not maintain clear antecedent basis for all terms used in the claim language in such a manner as to allow a worker of ordinary skill in the art to understand what is being claimed and the limits thereof.

4. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-16 require an "organically modified, stable in storage, UV curable, NIR permeable silicic acid polycondensate which is photostructurable in layers having a thickness of 1 to 150 um, obtainable by condensation of..." The examiner is not sure exactly what limit is set by "obtainable by" which is also present in instant claims 17-18. She has assumed that the polycondensate claimed is the product of this reaction or a derivative of a product of this condensation or the exact product obtained in this manner as applicants have gone into great detail about how the presence of water is not wanted in the condensation because the resultant polycondensate then has Si-OH groups which are undesirable. However, the use of "obtainable" does not clearly state that this is the only manner in which to make the "silicic acid polycondensate". The examiner then considers the rest of the preamble. "organically modified" is taken to mean the silicic acid condensate must have organic groups attached. There is no clear definition of "stable in storage" with respect to the silicic acid condensate so the examiner takes this property to be a desired result but not a limit on the claimed invention. The examiner assumes NIR stands for near infrared as applicants reference wavelength ranges of 1310 to 1550

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nm on page 14 in reference to NIR. Thus, the "silicic acid polycondensate" claimed must have NIR permeability. However, just where the permeability limits are is unclear. The examiner does note the bottom of page 12 of applicant's specification as follows:

In further embodiments of the silicic acid polycondensates according to the invention, R¹ of the general formula V carries -OH and/or -SH and/or -NHZ groups. Said radicals cause an increase of the absorption in the NIR, but after polycondensation they can be used for coupling with other components, the absorption of the resulting materials thereby being reduced again. With the help of the aforementioned radicals, the resulting polycondensates can be provided with further functionalities. In this way, a chemical modification of the polycondensates according to the invention is possible.

Thus, the limitation of "NIR permeable" in the claim language in the preamble may or may not reference only part of the silicic acid polycondensates wherein V is used as in instant claim 4 wherein NHZ groups are present. Thus, it is not clear what the limitation of "NIR permeable" means with respect to the claimed silicic acid polycondensates. The examiner has taken UV curable to mean the silicic acid polycondensates can somewhere down the line be cured by UV. Such includes further modification as set forth by applicants by optional additives. Thus, with respect to the silicic acid polycondensates this is seen as an intended use of the claimed material and not necessarily a current property of the material. Thus, there is no limitation set by UV curable with respect to further additives being necessarily present in the claimed material. The limitation to "photostructurable..." is seen as an intended use limitation only. This limit is found in claim 18 as well. Thus, claims 1-18 are confusing for the reasons given and interpreted for examination purposes to be unlimited by the preamble with the exception of the need to have organic groups on the silicic acid polycondensate. This is the broadest reasonable interpretation of this claim language for examination purposes. However, the examiner notes that claim 17 is not limited to "organically modified, stable in storage, UV curable, NIR permeable silicic acid

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polycondensate which is photostructurable in layers having a thickness of 1 to 150 um, obtainable by condensation of...." but instead is only a "silicic acid condensate "obtainable" in the exact manner the "organically modified, stable in storage, UV curable, NIR permeable silicic acid polycondensate which is photostructurable in layers having a thickness of 1 to 150 um, obtainable by condensation of...." in claim 1 is. Thus, what are the differences between the silicic acid polycondensate of claim 1 and that of claim 17? The examiner assumes one must exist or otherwise applicants have presented a duplicate claim which would be objectionable under current office procedure. Thus, claims 1-16 and 18 are held confusing because how the limits of the preamble play on the claimed invention is unclear in view of applicant's disclosure and in view of claim 17 being presented without such possible limits.

5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants require that the silicic acid polycondensate according to claim 1 have R of the general formula II contain "functional groups". Applicants do not define what is meant by "functional" here. Since epoxy groups or C=C groups are present in R, is not some "function" required present already? Are applicants referencing the bottom of page 12 of their specification as reproduced below, with emphasis added in italics by this examiner, wherein "functionalities" is not again defined?

In further embodiments of the silicic acid polycondensates according to the invention, R¹ of the general formula V carries -OH and/or -SH and/or -NHZ groups. Said radicals cause an increase of the absorption in the NIR, but after polycondensation they can be used for coupling with other components, the absorption of the resulting materials thereby being reduced again. With the help of the aforementioned radicals, the resulting polycondensates can be provided with further *functionalities*. In this way, a chemical modification of the polycondensates according to the invention is possible.

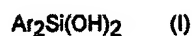
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Are functionalities the to be avoided -OH and/or -SH and/or -NHZ groups if NIR absorption is to be obtained? What function is being addressed by the language of claim 10. Thus, the limits of claim 10 are unclear.

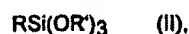
6. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants do not define what is meant by "negative resist" in their specification. Thus, how the material of claim 15 differs from the material of claim 14 is unclear. Are these materials the same? Are other components required because the word "negative" is used or the word "resist" is used? Are photoinitiators required? Are the negative resists even required to photostructurable? What makes the materials photostructurable? Thus how the silicic acid polycondensate is further limited by "negative resist" is unclear here. Is the negative resist different than the fiber materials, injection molding materials or embedding compounds of page 15 wherein the inventive silicic acid polycondensates are used to form?

7. The examiner notes that this application was not restricted because all claims as presented had present the required special feature under lack of unity rules required in 371 applications. The special feature is:

Silicic acid polycondensate, obtainable by condensation of one or more organically modified silanediols of the general formula I and/or precondensates derived therefrom



with one or more organically modified silanes of the general formula II



wherein condensation occurs without the addition of water,

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wherein the molar ratio of the compounds I and II in relation to the monomers is 1:1, wherein up to 90 mole percent of said compound II can be replaced by one or more co-condensable compounds of boron, aluminum, silicon, germanium, titanium and zirconium, and wherein the radicals are identical or different and have the following meaning:

- Ar = a radical having 6 to 20 carbon atoms and at least one aromatic group,**
- R = an organic radical having 2 to 15 carbon atoms and at least one epoxy group and/or at least one C=C double bond,**
- R' = methyl or ethyl.**

All independent claims have this special feature in common.

8. Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim two, last two lines is found the limitation "... wherein the molar ratio of said replaced compound II in relation to said compound III is 3:2." What is the "said replaced compound II"? Is it (a) the "said compound of the general formula II" of line 2, or is it (b) the up to 90 mole percent of said compound of the general formula II that is replaced by one or more compounds of the general formula III? If it is (a) then the molar ratio of said replaced compound II in relation to said compound III is the molar ratio of compound II to the molar ratio of said compound of the general formula II before it was substituted with up to 90 mole % of compound III. If it is (b) then the molar ratio of said replaced compound II in relationship to said compound

III must always be 1:1 since the moles of II removed are replaced with the same moles of III. If this is so, then claim 2 does not make chemical sense. Is there a third possibility such as the remaining amount of II after substitution is the "said replaced compound II"? Thus, for every 3 remaining moles of II there are exactly 2 moles of III? The examiner suggests applicants look at page 9 of their specification for help with this confusion. Here applicants are referencing replacing each two moles of II with three moles of III to get the groups for condensation reactions right. The wording now in claim 2 does not make clear what is set forth on page 9 if this is the intended meaning of this claim language. The same wording problems exist in claims 3 and 4 with respect to "said replaced compound II". Thus, claims 2-4 are confusing.

9. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 recites the limitation "one compound of general formula III" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "one compound of general formula IV" in line 4. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "one compound of general formula V" in line 4. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "compounds of general formula III and IV" in line 5. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "compounds of general formula III and V" in line 5. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "compounds of general formula IV and V" in line 6. There is insufficient antecedent basis for this limitation in the claim. Claim 5 recites the limitation "compounds of general formula III and IV and V" in lines 6-7. There is insufficient antecedent

basis for this limitation in the claim. Applicants are reminded that under 37 CFR 1.75(c)a dependent claim can dependent upon other claims only in the alternative. A claim which concurrently depends upon two separate claims will be objected to as improperly dependent and will examined no further. In view of this and the failure to identify the variables general formulas III, IV and V in this claim, no further examination of this claim is made. See particularly MPEP § 608.01(n). This claim is dependent upon claim 1 only. These variables are not part of claim 1.

10. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation "general formula III", "IV", "M", "V", "R¹" R²" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Applicants are reminded that under 37 CFR 1.75(c)a dependent claim can dependent upon other claims only in the alternative. A claim which concurrently depends upon two separate claims will be objected to as improperly dependent and will examined no further. In view of this and the failure to identify the variables III, IV M, V, "R¹" and "R²" in this claim, no further examination of this claim is made. See particularly MPEP § 608.01(n). This claim is dependent upon claim 1 only. These variables are not part of claim 1.

11. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites the limitation "V" and "R¹" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 11 is dependent solely on claim 1. These variables are not defined in claim 1 either. Applicants are reminded that under 37 CFR 1.75(c)a

dependent claim can dependent upon other claims only in the alternative. A claim which concurrently depends upon two separate claims will be objected to as improperly dependent and will be examined no further. In view of this and the failure to identify the variables "V" and "R¹", no further examination of this claim is made. See particularly MPEP § 608.01(n).

12. The information disclosure statement filed March 14, 2003 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because of KNOLL, Walter, "Chemie und Technologie der Silicon," Journal F. prakt. Chemie, Vol. 330, Issue 2: 1988, pp.316-318. is not cited in the specification on page 8 or page 16. Because this reference is not cited in the specification and explained, applicants have failed to present a concise explanation of the relevance in English of this document as required by 37 CFR 1.98 (a)(2)(i). Applicants have failed to submit a complete copy of the KNOLL book as well thus failing to comply with 37 CFR 1.98 (b). Applicants have appeared to present two separate documents as one in their information disclosure statement. One page is the apparent fly page of a 1968 book written by Mr. Walter Noll entitled "CHEMIE UND TECHNOLOGIE DER SILICONE". No other page of this book is submitted with this Information Disclosure Statement. Applicants cite "Chemie und Technologie der Silicone" (Walter Noll, Verlag Chemie, Weinheim/Bergstrasse, 1986) on page 8 of their specification. The examiner notes that this reference has no page cite and is of a different year than the fly page submitted. Copied onto the back of this fly page is page 316 of an apparent German article from a Journal dated 1988, i.e. after the publication of the book of Mr. Noll, and attributed to Hasse et al. all pages 316-318 have been submitted. This German article of pages 316-318 appear to be the Journal f. prakt. Chemie, vol. 330, issue 2, 1988, p. 316-318, citation on page 16 of the instant specification. However, applicants have failed to

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separately identify this document in their said Statement and applicants have failed also to identify this article by the correct author as required by 37 CFR 1.98 (b)(5). Since the other reference listed on said Statement has been fully considered, the Knoll item is not considered and has had a line drawn through the citation to show that it has not been considered as per MPEP 609 according to Examiner handling of Information Disclosure Statements.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) he has abandoned the invention.

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(f) he did not himself invent the subject matter sought to be patented.

(g)(1) during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

15. Claims 1, 10, 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Gutek (4,824,875). With respect to instant claims 1, 10, 12-18, Gutek et al teach the instant condensate and method of making with alcoholic potassium hydroxide in the paragraph bridging col. 3-4 wherein R" is chosen as Phenyl. This sole choice is seen as immediately envisionable by a worker of skill in the art and is one of only two choices for this variable

16. Claims 1, 10, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutek (4,824,875). With respect to instant claims 1, 10, 12-18, Gutek et al teach the instant condensate and method of making with alcoholic potassium hydroxide in the paragraph bridging

col. 3-4 wherein R" is chosen as Phenyl. This is the choice of one of two groups and if R" is the same then the product.

17. Claims 1, 10, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujioka et al (5,292,849). Fujioka et al teach making the instant silicic acid polycondensates with the exception of an explicit example wherein the diphenylsilane diol is used. However, in the Abstract (1), n can be 1 thus it can be a diol and Compound A of Fujioka et al are inclusive of phenyl, tolyl, benzyl and phenylethyl groups with 3. being the dimer of the diol of the instant invention. The method of making the compounds (A) of Fujioka et al is set forth in Example 1 and it is without water using an acryloxymethyl methyldiethoxysilane and a silane diol wherein methanol is removed and tin dioctanoate is used in the formation. In Fujioka et al, see particularly col 2-4 , and Example 1. With respect to instant claims 1, 10, 12-18, the selection of R1 being phenyl, tolyl, benzyl and phenylethyl and n=1 would have been prima facie obvious in Fujioka et al to form the acrylic organopolysiloxanes in an easy manner as set forth without water being present to form acrylic siloxanes curable in air with irradiation as set forth in col. 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cynthia Hamilton
Primary Examiner
Art Unit 1752

February 23, 2004

**CYNTHIA HAMILTON
PRIMARY EXAMINER**